

# PROPECTINATITES, A NEW LOWER KIMMERIDGIAN AMMONITE GENUS

by JOHN C. W. COPE

ABSTRACT. *Propectinatites websteri* gen. et sp. nov., sub-family Virgatosphinctinae, from the Autissiodorensis Zone of the Lower Kimmeridge Clay of Dorset, is described and figured. Dimorphism is recognized in this genus.

SYSTEMATIC collecting of the perisphinctid ammonites from the type section of the Kimmeridge Clay in Dorset has shown that the lower part of the Upper Kimmeridge Clay is characterized by an evolutionary sequence of species of the genus *Pectinatites*. The earliest specimens of this genus appear to occur at the base of the Elegans Zone, above the highest recorded *Aulacostephanus* (Cope 1967). A search for earlier forms was made in the underlying Autissiodorensis Zone (Ziegler 1962), where perisphinctid ammonites are rare and generally very poorly preserved. One horizon yielded well preserved (though crushed) forms, apparently belonging to a new genus named here *Propectinatites*.

## SYSTEMATIC DESCRIPTIONS

Order AMMONITIDA

Family PERISPINCTIDAE

Sub-family VIRGATOSPINCTINAE Spath 1923

Genus PROPECTINATITES gen. nov.

*Type species. Propectinatites websteri* sp. nov.

*Diagnosis.* Evolute dimorphic coarse-ribbed ammonites of the sub-family Virgatosphinctinae. Macroconch diameter approximately 150 mm., microconch diameter approximately 90–100 mm. Microconch peristome bears a short pair of lappets. Ribs mainly bifurcate, having a rather ‘untidy’ appearance, with occasional simple and polygyrate ribs.

*Remarks.* The genus bears some resemblance to the genus *Pectinatites* Buckman, and in particular to species of the subgenus *Arkillites* Cope. The differences between the latter subgenus and *Propectinatites* are that *Propectinatites* is more coarsely ribbed throughout development; and that the microconchs of *Propectinatites* bear lappets, whereas the microconchs of *Arkillites* are horned. However, in *Pectinatites* (*Arkillites*) *primitivus* Cope the peristome of the microconch is only feebly inflated ventrally. As this latter species occurs in the lower and middle parts of the Elegans Zone (i.e. is only a little younger geologically than *Propectinatites*) it seems possible that *Propectinatites* evolved into *Pectinatites* by the base of the Elegans Zone, by development of somewhat finer ribbing and loss of the lappets, these being replaced by a ventral peristomal inflation leading to the development of a true ‘horn’ by the end of the Elegans Zone.

There are few published records of any reliability on the ammonite fauna of the Autissiodorensis Zone of Dorset. Among the more recent, Arkell (1947, pp. 66, 73) recorded *Lithacoceras* from these beds, and Ziegler (1962, p. 13) recorded *Subplanites rueppellianus* (Quenst.). The author has been unable to find any evidence for the existence of either of these genera. As shown elsewhere (Cope 1967), the genera *Subplanites* Spath and *Lithacoceras* Hyatt do not occur in the Upper Kimmeridge Clay of Britain. The ammonites there are species of *Pectinatites*, to a large extent homeomorphic with the former Tithonian genera. The author believes that *Propectinatites* is the ammonite genus which Ziegler and Arkell identified with the Tithonian genera. There is certainly a resemblance between the macroconch of *Propectinatites websteri* and *Subplanites rueppellianus*. This latter species, however, is based on lappeted (therefore microconch) specimens. The resemblances are thus between Tithonian microconchs and Kimmeridgian macroconchs, and the similarity must be regarded as homeomorphy.

*Propectinatites websteri* gen. et sp. nov.

Plate 1, figs. 1, 2

*Material.* Four specimens (one macroconch, three microconchs). The type specimens are deposited in the British Museum (Natural History).

*Holotype.* Macroconch BM C. 73731.

*Paratypes.* Microconch BM C. 73732 and two other microconchs.

*Horizon.* All the specimens were obtained from shales 30 ft. above the Washing Ledge Stone Band; *Aulacostephanus autissiodorensis* Zone, Lower Kimmeridgian.

*Locality.* Brandy Bay, Kimmeridge, Dorset.

*Description*

*Macroconch.* Moderately evolute shell with a diameter of about 150 mm. The holotype has a diameter of 152 mm., but part of the outer whorl, half a whorl back from the peristome, has broken and the complete diameter was probably about 158 mm. All the specimens of this species are crushed and so the diameter is larger than would be the case if the ammonites had been preserved solid. The umbilical diameter of the holotype (probably unaffected by the crushing) is 75 mm. At 15 mm. diameter there are 26 ribs; at 20, 26; 25, 27; 30, 28; 35, 28; 40, 29; 45, 30; 50, 31; 55, 32; 60, 33; 65, 34. The outer whorl has 37 primary and 77 secondary ribs.

The ribs on the inner whorls are rectiradiate at the umbilical shoulder, they then swing forwards to become slightly prorsiradiate and more or less straight for the remainder of their length. The point of bifurcation of the ribs is fairly high on the whorl-side and for the most part is not visible on the innermost whorls. The umbilical seam uncoils over the last half-whorl and the point of bifurcation of the ribs is thus readily visible on the penultimate whorl.

The ribs on the outer whorl are rather irregular and have an 'untidy' appearance. They become coarser and have a wide angle of furcation. Occasional simple and polygyrate ribs are developed.

The peristome, though slightly damaged, is seen to be simple. The suture line is unknown.

*Microconch.* Moderately evolute shell having a diameter of 90–100 mm. Diameter of the umbilicus 37–47 mm. The last whorl of the paratype, which is 92 mm. in diameter and has an umbilical diameter of 42 mm., has 37 primary and an estimated 67 secondary ribs. At 15 mm. diameter the paratype has 26 ribs; at 20, 27; 25, 27; 30, 28; 35, 29; 40, 31.

The ribs of the inner whorls are similar in style to those of the macroconch. On the outer whorl the forward inclination is not so pronounced, and the ribs approach the rectiradiate condition. The point of bifurcation of the ribs is not visible on the innermost whorls, but the uncoiling of the umbilical seam over the last half to five-eighths of a whorl renders it visible on the penultimate whorl.

On the outer whorl the ribs become more coarse than those of the inner whorls, and occasional simple ribs are developed. The peristome bears lateral lappets which on one of the paratypes project forwards by some 9 mm.

*Remarks.* The general similarity of the two forms, their very similar rib density, and their occurrence at the same horizon leave no doubt that the macroconch and microconch figured belong to the same species.

#### REFERENCES

- ARKELL, W. J. 1947. The geology of the country around Weymouth, Swanage, Corfe, and Lulworth. *Mem. geol. Surv. U.K.*
- COPE, J. C. W. 1967. The palaeontology and stratigraphy of the lower part of the Upper Kimmeridge Clay. *Bull. Br. Mus. Nat. Hist. (Geol.)* **15**, 1–79, pl. 1–33.
- ZIEGLER, B. 1962. Die Ammoniten-Gattung *Aulacostephanus* im Oberjura. *Palaeontographica*, **119A**, 1–172, pls. 1–22.

JOHN C. W. COPE  
Department of Geology,  
University College,  
Swansea,  
Wales

Typescript received 8 October 1966

---

#### EXPLANATION OF PLATE 1

Fig. 1. *Propectinatites websteri* gen. et sp. nov., paratype, microconch, BM C. 73732.

Fig. 2. *Propectinatites websteri* gen. et sp. nov., holotype, macroconch, BM C. 73731.

Both specimens are from 30 ft. above the Washing Ledge Stone Band, Autissiodorensis Zone, Brandy Bay, Kimmeridge, Dorset. Both figures natural size.